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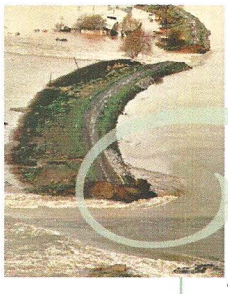
Department of Water Resources
Flood Emergency Response Program

DRAFT

Delta Flood Emergency Preparedness and Response Plan

A Program Overview

FloodSAFE CALIFORNIA DEPARTMENT OF WATER RESOURCES



The Sacramento-San Joaquin River Delta (Delta) is a unique resource and an integral part of California's water system. Runoff from approximately 40 percent of California's land surface passes through the Delta, serving over 26 million people and providing irrigation for about three million acres of land. The Delta supports recreational activities and provides valuable habitat for aquatic and terrestrial animals and plants.

Due to the Delta's vulnerability to flooding, and the potential impact of major flooding to the area's natural resources and California's water supply infrastructure, the Department of Water Resources (DWR) has developed the Delta Flood Emergency Preparedness, Response, and Recovery Project to improve its ability to respond to large-scale flood emergencies in the Delta and minimize recovery time from these events. Project components include:

- Facility Development and Logistics
- Risk Assessment and Technical Studies
- Levee Improvement
- Preparing the Delta Flood Preparedness and Response Plan

DWR is working with local emergency responders and state and federal agencies responsible for flood emergencies to prepare DWR's Delta Flood Emergency Preparedness and Response Plan (Delta Flood EPRP). DWR will work closely with these entities to integrate the Delta Flood EPRP into a Delta Multi-Agency Integrated Flood Emergency Operations Plan (Delta MIF-EOP).

The Delta Flood EPRP is part of DWR's overall approach to "Improve Emergency Response" in California. It is also an element of FloodSAFE California, a comprehensive program for improving flood preparedness, response, and recovery throughout the state. DWR's approach in preparing both the Delta Flood EPRP and the Delta MIF-EOP is consistent with the State Emergency Plan, Senate Bill 27 (Simitian) and the Federal Emergency Management Agency's (FEMA) *State and Local Guide,* which states, "Emergency management is a joint responsibility of federal, state, and local agencies."

The Delta Risk Management Study conducted by DWR estimates that a major flood could impact the state as much as $25 billion, and up to $90 billion if a major earthquake involved the Delta. The study estimates that there is a 25 percent probability that 30 Delta islands will be flooded within the next 25 years due to simultaneous levee failure.

Improve Emergency Response

- Real-Time Flood Conditions, Status, and Warning
- Climate Data Collection and Precipitation/ Runoff Forecasting
- Reservoir Operations and River Forecasting
- Flood Operations Emergency Response
- Updated Hydrology and System Reoperation

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Delta Flood Preparedness, Response, & Recovery Project

Delta Flood Preparedness and Response Plan

- Assemble Working Group
- Prepare Public Draft DWR Delta FEPR Plan
- Final DWR Delta FEPR Plan
- Integrate DWR Delta FEPR Plan into MIF-EOP
- Integrate MIF-EOP into Local Agencies EOP

Engineering Facility and Logistics

- Acquire, Design, and Develop Permanent Transfer Facilities
- Acquire Response Materials
- Prepare Delta ER Facility Operations Plans
- Plan for Training and Exercises

Risk Assessment and Technical Studies

- Assess Delta Flood Risk
- Develop Response Strategies
- Conduct Water Quality Studies for Strategies
- Document Benefits and Impacts of Response Strategies
- Prioritize Response Strategies
- Develop Real-Time Emergency Response Decision Support

Levee Improvement

- EBMUD Aqueduct Protection
- Targeted Levee Improvements

Program Partners

DWR recognizes that participation by program partners and stakeholders is essential for successful formulation and execution of emergency response plans. Consistent with SB27 (Simitian), a Delta Working Group has been established is to strengthen working relationships with local, state, federal, and emergency responders, and incorporating flood emergency preparedness and response into the local agencies' emergency operations plans (EOPs).

The Delta Working Group members include:

- DWR Program Managers
- State Office of Emergency Services representatives
- Five-County Emergency Response Representatives (Contra Costa, Sacramento, San Joaquin, Solano, and Yolo)
- U.S. Army Corps of Engineers
- Local Maintaining Agency representatives

The Delta Working Group will hold monthly meetings to review and guide work in progress. It also will play a central role in communicating with stakeholders and the general public, and in preparing and executing the Communication Plan specifically geared for the Delta. This plan is a multi-dimensional program for communicating with stakeholders that includes an interactive web site, quarterly workshops, and distribution of public drafts of the Delta Flood EPRP and the Delta MIF-EOP for stakeholder review and comment.

Scope of DWR Delta Flood EPRP

The Delta Flood EPRP and the Delta MIF-EOP will consist of four interrelated categories of actions that will provide effective response to any flooding hazard that threatens the Delta. These categories of actions are contained in FEMA guidelines:

- **Mitigation** – Flood hazard analysis will be used to identify risks, establish priorities, and implement structural (such as levee improvements) and non-structural measures to reduce damages resulting from floods.

- **Preparedness** – Preparedness activities focus on training of DWR staff and other responders; exercises to drill flood emergency responders, to test communication lines, and to clarify roles and responsibilities of emergency responders; pre-deployment of flood fighting and recovery materials; expanding, maintaining, and testing communications systems; and strengthening of reporting and decision-making processes. Preparation of the Delta Flood EPRP is designed to prepare state, federal and local agencies for future floods.

An important objective for DWR will be to present the roles of each organization's responsibilities for flood emergency response so that all responders understand their individual roles and how those roles fit into the response strategy.

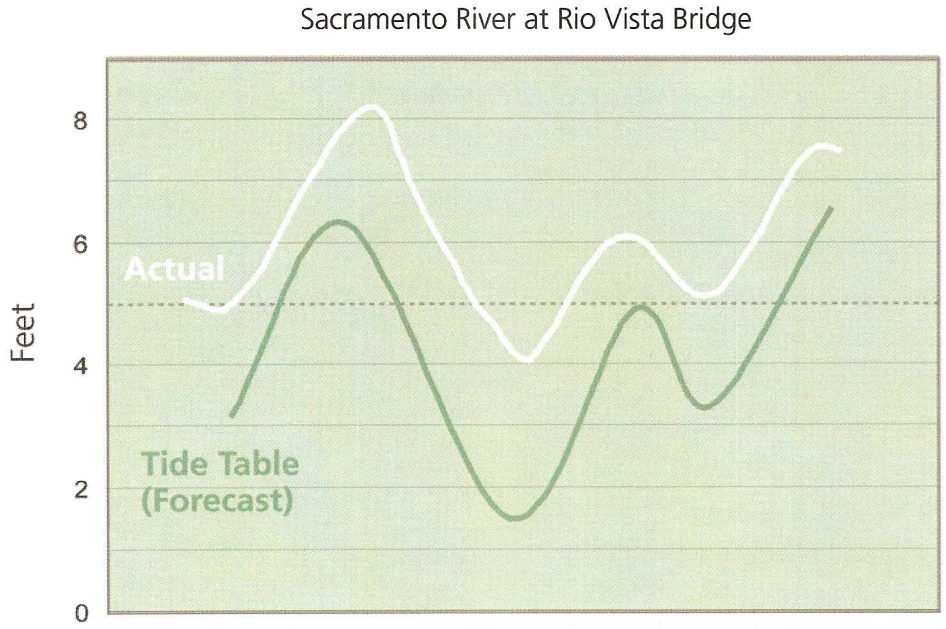
» **Response** – Effective response requires swift activation of pre-planned actions, accelerated mobilization of pre-positioned resources, and capacity to accurately assess conditions so that available resources are well deployed and additional resources can be summoned, as needed. The objectives of the "Engineering Facility and Logistics," and "Risk Assessment and Technical Studies" components are to provide a framework, tools, and materials to rapidly respond to catastrophic floods and recover as quickly as possible.

» **Recovery** – Recovery actions come into play as flood waters recede. Recovery activities include assessment and prioritization of recovery needs, development of a recovery plan based on assessed needs, and mobilization of public and private resources to carry out the recovery plan. Of particular significance to DWR is timely restoration of important infrastructures, including Delta water supply facilities.

A goal of the Delta Flood EPRP is to reduce the recovery time of Delta water supply facilities from a catastrophic flood event to six months. To achieve this goal, recovery actions will be prioritized by DWR to ensure that those actions, that contribute to rapid improvement of water quality in the Delta are implemented in a timely manner. To define and implement measures that will benefit water quality in the Delta, extensive modeling studies will be conducted and adequate materials will be stockpiled and readied prior to a catastrophic flood event.

Technical Studies in Support of Delta Flood Emergency Preparedness, Response, and Recovery Project

Technical studies will begin with the examination and assessment of flooding risk scenarios to capture the frequency and probability of various levels of flooding hazards. Various recovery actions will be formulated in response to risk scenarios. Following these analyses, extensive water quality and hydraulic analyses will be performed to determine how response and recovery actions will affect flow patterns and improve salinity levels throughout the Delta. These technical studies will then be used to assess the performance of a range of response and recovery strategies, prioritize response and recovery actions, and determine resource requirements



January 4 and 5, 2008 Tides at Rio Vista
Tide Table Forecast vs. Actual

High winds and high tides and flows in the Sacramento River contribute to flooding in the Delta. The California Data Exchange Center monitors water levels, wind speed, and wind direction in the Delta. Graphic above shows the hourly water level at Rio Vista Bridge versus the tide table forecast.

to implement effective strategies. The goal of the technical studies will be to develop a plan that will reduce recovery time for water supply facilities during catastrophic flood events, and will serve as a basis for facility design and for estimating materials and resources needed for recovery.

Technical studies also may be useful in quantifying and capturing the benefits of strategies that reduce the recovery time for Delta water supply infrastructure to achieve DWR's objective of "reducing flood recovery time." Technical study teams have been assembled to assist in conducting a series of studies that include risk management, engineering studies, program outreach, and other technical studies including hydraulic and water quality studies.

Facilities and Resources for Flood Response and Recovery in the Delta

DWR has initiated a process to identify, design, and develop facilities located strategically in the Delta for stockpiling materials and equipment needed for effective response and recovery from catastrophic flood events. Three facilities are envisioned under this program. Local agencies have also indicated an interest in accessing stockpiled materials and equipment during smaller flood events (involving one to five levee breaks). In response to local agencies' comments, DWR is developing a broader program to respond to all levels of flood events as described below.

DWR is requesting from the Department of Finance, the authority to establish an emergency fund (E-Fund) to quickly and effectively have the resources to respond to flood events throughout the state. The E-Fund will authorize DWR to assess and respond to potential flood events considered to be an imminent threat to lives and property as quickly as possible prior to a declaration of emergency when state and/or federal funding becomes available. DWR may use the E-Fund to respond to any type of flooding in the Delta that the DWR considers to pose an immediate threat. The resources needed for response and recovery may come from the stockpiled facilities or from direct deliveries by vendors as DWR may deem appropriate and feasible.

Status

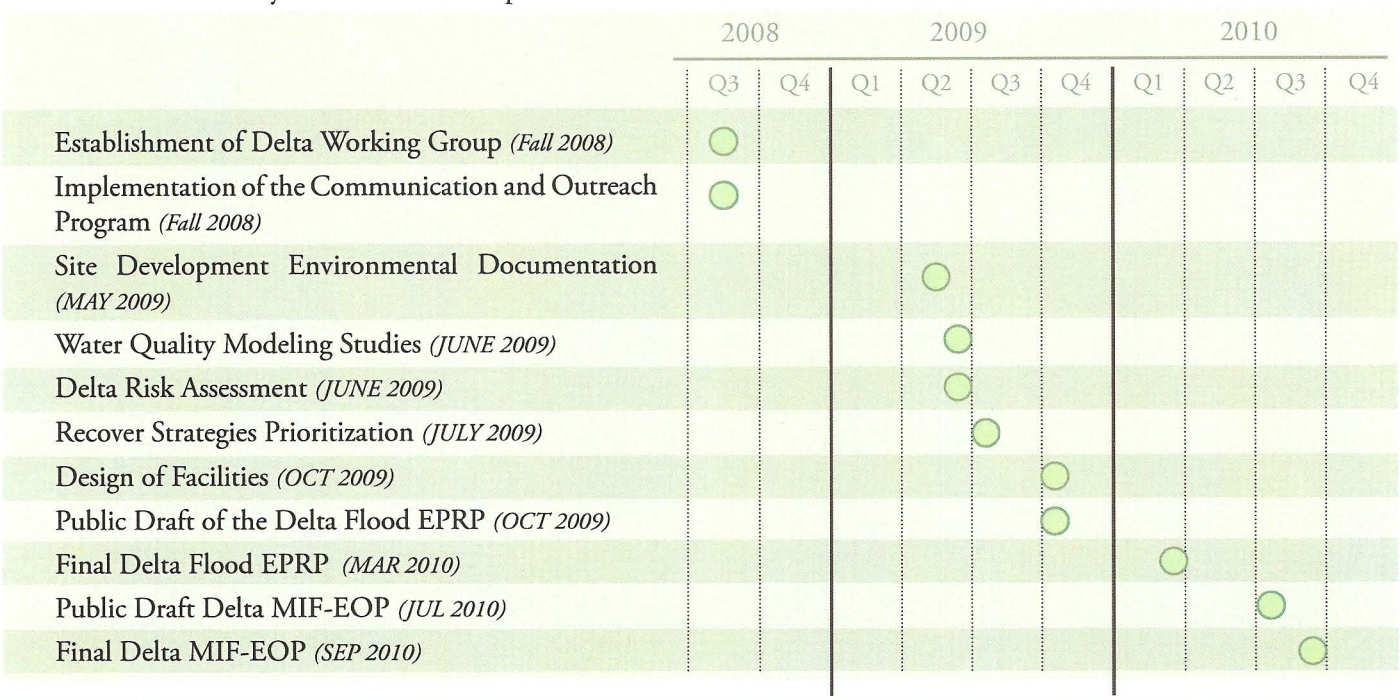
Formulation of the Delta Flood EPRP and of the Delta MIF-EOP is a multi-step process. Key steps include:

- Development of the Management Plan by DWR to provide a roadmap for the Delta Flood EPRP and the Delta MIF-EOP
- Establishment of a Working Group
- Development and implementation of the Communication Plan
- Performance of technical studies
- Review of local agencies' plans
- Preparation of the Draft Delta Flood EPRP and public comment period
- Preparation of the Delta MIF-EOP

The Management Plan and the Communication Plan are drafted and will be finalized shortly. The Delta Working Group is being established and technical studies are being initiated.

Schedule

Key milestones for completion of the Delta Flood EPRP and the Delta MIF-EOP



For additional information, contact:
Geoff Shaw
(916) 574-2153
gshaw@water.ca.gov

Or, visit us on the Web at: www.water.ca.gov

Arnold Schwarzenegger
Governor

Mike Chrisman
Secretary of Resources

Lester A. Snow
Director
Department of Water Resources

Prepared by GEI Consultants, Inc. for
The California Department of Water Resources
Naser Bateni, Program Manager (PE 36128)